Attorney's Docket No.: 14219-087US1 Client's Ref.: P2002,0911USN Applicants: Heinz Florian, et al.

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## AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

## **LISTING OF CLAIMS**:

1. (Currently Amended) A monolithic multilayer piezoelectric component comprising:

a stack of ceramic layers; lying one upon the other and at least two electrode layers arranged between said ceramic layers in the stack;[[,]] wherein the electrode layers contain elemental comprise copper; and wherein the ceramic layers contain comprise a lead-zirconate-titanate which that is doped with Nb.

- 2. (Currently Amended) The piezoelectric component according to of claim 1, wherein the <u>lead-zirconate-titanate comprises</u> eeramie layers contain a material of the  $\underline{having\ a}\ composition\ \underline{of}\ Pb_{0.988}V_{0.012}(Zr_{0.504+x}Ti_{0.472-x}Nb_{0.024})O_{3.000},\ \underline{whereby\ the\ following}$ applies: where  $-0.05 \le x \le 0.05$ .
  - 3. (New) The piezoelectric component of claim 2, wherein a ratio of Ti to Zr in the material corresponds to a morphotropic phase boundary.

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4. (New) The piezoelectric component of claim 1, wherein the ceramic layers are substantially free of Ag.

- 5. (New) The piezoelectric component of claim 1, wherein the ceramic layers and the electrode layers are sintered together.
  - 6. (New) An actuator comprising the piezoelectric component of claim 1.
- 7. (New) The actuator of claim 6 having a deflection of about  $30\mu m$  and an energy loss of about 20mJ.
- 8. (New) The piezoelectric component of claim 2, wherein a dielectric constant of the material varies less with temperature than does a dielectric constant of an Nd-doped ceramic having a composition of Pb<sub>0.97</sub>V<sub>0.01</sub>Zr<sub>0.55515</sub>Ti<sub>0.4485</sub>O<sub>3</sub>.
- 9. (New) The piezoelectric component of claim 1, wherein the electrode layers are substantially free of holes.
- 10. (New) A piezoelectric component comprising: ceramic layers comprise a material having a composition of  $Pb_{0.988}V_{0.012}(Zr_{0.504+x}Ti_{0.472-x}Nb_{0.024})O_{3.000}, \ where \ -0.05 \le x \le 0.05;$

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wherein a dielectric constant of the material varies less with temperature than does a dielectric constant of a specific ceramic doped with Nd.

11. (New) The piezoelectric component of claim 10, wherein a ratio of Ti to Zr in the material corresponds to a morphotropic phase boundary.

12. (New) The piezoelectric component of claim 10, wherein the ceramic layers are substantially free of Ag.

13. (New) The piezoelectric component of claim 10, wherein the specific ceramic has a composition of  $Pb_{0.97}V_{0.01}Zr_{0.55515}Ti_{0.4485}O_3$ .

14. (New) The piezoelectric component of claim 10, further comprising an electrode layer between at least two of the ceramic layers, the electrode layer being sintered with the at least two ceramic layers.

15. (New) The piezoelectric component of claim 14, wherein the electrode layer comprises copper.

16. (New) A piezoelectric actuator comprising:

a ceramic that is substantially free of AG; and

electrode layers embedded in the ceramic, the electrode layers comprising copper;

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wherein the ceramic comprises a material having a composition of  $Pb_{0.988}V_{0.012}(Zr_{0.504+x}Ti_{0.472-x}Nb_{0.024})O_{3.000}, \ where \ -0.05 \leq x \leq 0.05.$ 

- 17. (New) The piezoelectric actuator of claim 16, wherein a ratio of Ti to Zr in the material corresponds to a morphotropic phase boundary.
- 18. (New) The piezoelectric actuator of claim 16 having a deflection of about30μm and an energy loss of about 20mJ.
- 19. (New) The piezoelectric actuator of claim 16, wherein a dielectric constant of the material varies less with temperature than does a dielectric constant of an Nd-doped ceramic having a composition of  $Pb_{0.97}V_{0.01}Zr_{0.55515}Ti_{0.4485}O_3$ .
- 20. (New) The piezoelectric actuator of claim 16, wherein at least one of the electrode layers is substantially free of holes.